Abstract

The present invention relates to the covalent binding of a hydrogel to an extracellular matrix (ECM). The integration of the hydrogel with the tissue is superior to that in previous techniques. Moreover, unlike previous techniques, the present invention does not require a photoinitiator. Potential therapeutic applications include tissue repair and delivery of drugs or cells.

The ECM is first exposed, then treated with a priming agent. Then a polymerizable agent is added and crosslinked to the ECM.

Two primary embodiments of methods are disclosed. In the first, the priming agent is an oxidizer which creates tyrosyl radicals in the ECM, which are then bound by acrylate groups in the polymerizable agent. In the second, the priming agent contains aldehydes which bind amino groups in the ECM.